JPL's On-Line Solar System Ephemeris and Data Service

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Numerous data products from the JPL ephemeris team have been made available via an interactive telnet computer service ("Horizons") and upcoming web page. For 15,000 comets and asteroids, 60 natural satellites, and the 9 planets, users with an Internet connection can easily create and download information 24 hours a day, 7 days a week. These data include customized, high-precision ephemerides, orbital and physical characteristics and search-lists of comets and asteroids that match combinations of up to 39 different parameters. For each body, the user can request computation of over 70 orbital and physical aspect quantities. Output can be generated in ICRF/J2000.0 and FK4/1950.0 reference frames with TDB, TT or UTC time-scales, at user specified intervals. Computed ephemeris tables are derived from the same files used at JPL for radar-imaging and spacecraft navigation. The dynamics and computed observables include relativistic effects. Available time spans currently range from 1599-2200 A.D., for the planets, to several years for the satellites, comets and asteroids. Information on the interference from sunlight and moonlight are available. As an example of a few of the features available, we note that a user could easily generate information on satellite and planetary magnitudes, illuminated fractions, and the planetographic longitudes and latitudes of their centers and sub-solar points as seen from a particular observatory location on Earth. Satellite transits, occultations and eclipses are available as well. The resulting ASCII tables can be transferred to the user's host computer via e-mail, FTP, or Kermit protocols. For those who have WWW access, a subset of the telnet ephemeris service will be one feature of the JPL solar system web pages. These pages will additionally provide up-to-date physical and orbital characteristics as well as current and predicted observing opportunities for all solar system bodies. Close Earth approaches and radar observations will be provided for comets and asteroids.

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